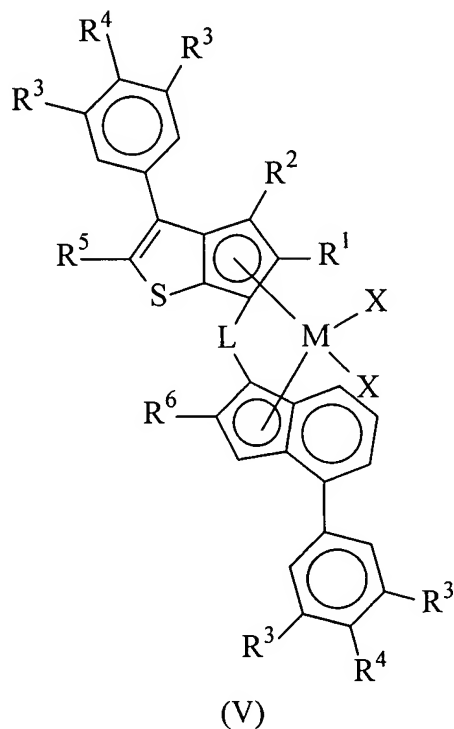
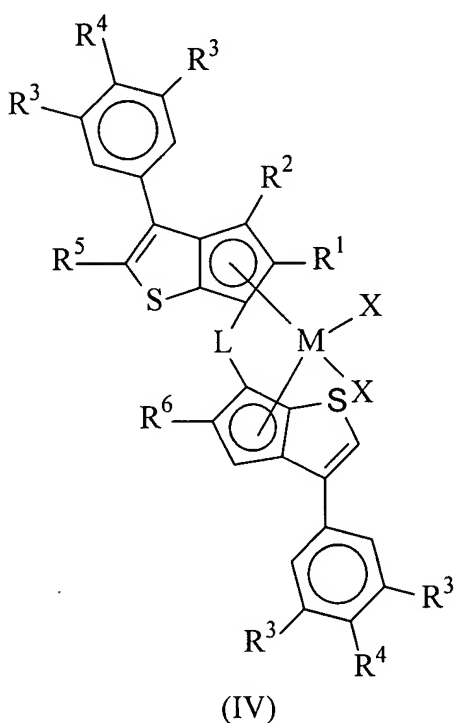


AMENDMENTS TO THE CLAIMS

1. (currently amended) A process for producing a polymer of ethylene containing from 0.1 to 99 % by mol of at least one derived unit of alpha-olefins of formula $\text{CH}_2=\text{CHZ}$, wherein Z is a $\text{C}_2\text{-C}_{20}$ alkyl radical, and optionally from 0 to 5% by mol polyene, comprising contacting, under polymerization conditions, ethylene, at least one alph-olefin and optionally said polyene, in the presence of a catalyst system obtained by contacting:
- a) a metallocene compound of formula (IV) or (V):



wherein

M is zirconium, hafnium or titanium;

X, equal to or different from each other, is a hydrogen atom, a halogen atom, an R, OR, OR'O, OSO_2CF_3 , OCOR , SR, NR_2 or PR_2 group, wherein R is a linear or branched, ~~saturated or unsaturated~~ $\text{C}_1\text{-C}_{20}$ -alkyl, $\text{C}_3\text{-C}_{20}$ -cycloalkyl, $\text{C}_6\text{-C}_{20}$ -aryl, $\text{C}_7\text{-C}_{20}$ -alkylaryl, or

C₇-C₂₀-arylalkyl radical, optionally containing at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements; and the R' substituent is a divalent group selected from C₁-C₄₀-alkylidene, C₆-C₄₀-arylidene, C₇-C₄₀-alkylarylidene or C₇-C₄₀-arylalkylidene radicals; two X can join to form a C₄-C₄₀ dienyl ligand; R¹ and R⁶ are each independently a linear or branched, saturated or unsaturated C₁-C₂₀-alkyl, C₃-C₂₀-cycloalkyl, C₆-C₂₀-aryl, C₇-C₂₀-alkylaryl, or C₇-C₂₀-arylalkyl radical, optionally containing at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements;

R², and R⁵, equal to or different from each other, are hydrogen atoms, halogen atoms, or linear or branched, ~~saturated or unsaturated~~ C₁-C₂₀-alkyl, C₃-C₂₀-cycloalkyl, C₆-C₂₀-aryl, C₇-C₂₀-alkylaryl, or C₇-C₂₀-arylalkyl radicals, optionally containing at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements;

R³ and R⁴ are each independently a hydrogen atom or a linear or branched, saturated or unsaturated C₁-C₁₀-alkyl radical, optionally containing at least one halogen atom ~~and R⁴ is a hydrogen atom or a linear or branched, saturated or unsaturated C₁-C₁₀-alkyl radical,~~ optionally containing at least one halogen atom, wherein when R³ is a hydrogen atom, R⁴ is a linear or branched, ~~saturated or unsaturated~~ C₁-C₁₀-alkyl radical, optionally containing at least one halogen atom, and when R³ is a linear or branched, ~~saturated or unsaturated~~ C₁-C₁₀-alkyl radical optionally containing at least one halogen atom, R⁴ is a hydrogen atom;

~~R⁶ is a linear or branched, saturated or unsaturated C₁-C₂₀-alkyl, C₃-C₂₀-cycloalkyl, C₆-C₂₀-aryl, C₇-C₂₀-alkylaryl, or C₇-C₂₀-arylalkyl radical, optionally containing at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements;~~

L is a divalent bridging group selected from C₁-C₂₀ alkylidene, C₃-C₂₀ cycloalkylidene, C₆-C₂₀ arylidene, C₇-C₂₀ alkylarylidene, or C₇-C₂₀ arylalkylidene radicals, optionally containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements, or a silylidene radical containing up to 5 silicon atoms; and

b) an alumoxane or a compound that forms an alkyl metallocene cation.

2. (original) The process according to claim 1 wherein the catalyst system further comprises an organo aluminum compound.
3. (currently amended) The process according to claim 1 wherein in the compound of formula (IV) or (V),

X is a halogen atom, an R, OR'O or OR group; R^1 ~~is~~ and R^6 are each independently a linear or branched, ~~saturated or unsaturated~~ C_1 - C_{20} -alkyl radical; R^2 is a hydrogen atom; R^6 ~~is a linear or branched, saturated or unsaturated~~ C_1 - C_{20} -alkyl radical; and L is $Si(CH_3)_2$, $SiPh_2$, $SiPhMe$, $SiMe(SiMe_3)$, CH_2 , $(CH_2)_2$, $(CH_2)_3$, $C(CH_3)_2$, $C(Ph)_2$ or $C(CH_3)(Ph)$.

4. (cancelled)
5. (currently amended) The process according to claim 1 wherein, in the compounds of formula (IV) and (V), when R^3 is a hydrogen atom, R^4 is $C(R^7)_3$, wherein R^7 , equal to or different from each other, is a linear or branched, ~~saturated or unsaturated~~ C_1 - C_8 -alkyl radical; and when R^4 is hydrogen, R^3 is $C(R^7)_3$, ~~wherein R^7 , equal to or different from each other, is a linear or branched, saturated or unsaturated~~ C_1 - C_8 -alkyl radical.
6. (cancelled)
7. (cancelled)
8. (previously presented) The process according to claim 1 wherein the catalyst system is supported on an inert carrier.
9. (previously presented) The process according to claim 8 wherein the inert carrier is a polyolefin.
10. (previously presented) The process according to claim 1 wherein the process is carried out in gas phase.
11. (previously presented) The process according to claim 1 wherein the alpha-olefin is 1-pentene, 1-hexene or 1-octene.
12. (cancelled)
13. (cancelled)